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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,389	03/20/2001	Kozo Mano	0052/042001	8768

22893 7590 04/26/2002

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 04/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/811,389

Applicant(s)

KOZO MANO

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim 1:

- The following limitation "at least an adjuster for adjusting an optical path of a laser beam *corresponding to the adjuster*" at lines 9-10 is unclear in that the adjustment of the optical path of the laser beam by the adjuster appears to be based on the adjuster itself but not on the feedback information provided by the position detector.

#### Claim 11:

- Similarly, the limitation "at least an adjuster for adjusting an optical path of a laser beam *corresponding to the adjuster*" at lines 13-14 is unclear in that the adjustment of the optical path of the laser beam by the adjuster appears to be

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based on the adjuster itself but not on the feedback information provided by the position detector.

Claims 2-10, and 12-20 are dependent from claims 1 and 11 above, and are therefore indefinite.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 11-13, 7-9, and 17-19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeadon et al. (U.S. 4,490,608) in view of Minoura et al. (U.S. 5,627,670).

Yeadon et al. discloses a optical scanning apparatus having two laser light sources (1 and 4) for oscillating and emitting at least two laser beams having different wavelengths (blue laser light source 1 and red laser light source 4), an optical scanning system (polygon mirror 8 and scanning lens 9) for scanning the laser beams on a predetermined scanning plane (scanning plane formed by the surface of the photosensitive medium 10), an optical paths adjusting system (5) for adjusting optical paths of the optical scanning system, including a position sensor (photodetectors 16,

17) and an adjuster (compensating deflector 5) for adjusting the optical path of each of the laser beams.

However, Yeadon et al. fails to explicitly teach the position sensor being disposed on a plane optically conjugated with the predetermined scanning plane, and the total reflection mirror.

Nevertheless, Minoura et al. discloses a scanning optical apparatus having a beam scan controller, which comprises a position sensor (15, Fig. 10) being disposed on a plane optically conjugated with the scanning plane (col. 9, lines 5-17) for detecting a positional deviation of the laser beam on the surface of the photosensitive drum (6), and an adjuster (reflecting mirror 33, Fig. 13) for adjusting the optical path of the laser beam in accordance with the detected positional deviation through a feedback loop. It is noted that Minoura et al. also indicates that the location of the position detector (photodetector 38 in Fig. 13) is not limited to one configuration and can be arranged (e.g., photodetector 15 of Fig. 10) in accordance with design specifications (col. 14, lines 12-22). Minoura et al. further teaches in Fig. 17 the beam splitter (66') acting as a total reflecting mirror (col. 16, lines 29-47).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the apparatus of Yeadon et al. with the aforementioned teaching of Minoura et al. By doing so, it is possible to correct the positional error as well as the focusing point of the laser beam on the surface of the photosensitive drum.

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On the other hand, Yeadon et al. further teaches the optical scanning apparatus including a beam splitter (11) for splitting the laser beams in a first way for introducing the laser beams toward the scanning plane (toward the photosensitive medium 10) and a second way for introducing split laser beams toward the position sensor (Fig. 1), the adjuster (5) being a mirror provided in the optical scanning system between the laser light sources and the polygon mirror, and rotated around an axis by an actuator (piezo electric block, not shown), a processor for calculating a quantity of displacement between the positions of the laser beams on the position sensor, and for controlling the actuator for coinciding the positions of the laser beams by using the calculated quantity of the displacement (Fig. 2).

6. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeadon et al. in view of Minoura et al., as applied to claims 1 and 11 above, and further in view of Uemura et al. (U.S. 5,436,645).

Yeadon et al., as modified by Minoura et al., discloses all the basic limitations of the claimed invention except for the monitor display.

Regardless, Uemura et al. discloses an inspection and adjustment method for a laser scanning optical system, which includes a display monitor for observing the detected laser light beam by a position sensor unit.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Yeadon et al., as modified by

Minoura et al., with the aforementioned teaching of Uemura et al. for the purpose of constantly monitoring the position of the detected light beam.

7. Claims 5, 6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeadon et al. in view of Minoura et al., as applied to claims 1 and 11 above, and further in view of Ackerman (U.S. 4,560,244).

Yeadon et al., as modified by Minoura et al., discloses all the basic limitations of the claimed invention except for the adjuster being a manually adjustable mirror.

However, Ackerman discloses a low-cost manually adjustable mirror for redirecting an incident laser beam, which can sustain high heat from a high beam energy sources.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Yeadon et al., as modified by Minoura et al., with the aforementioned teaching of Ackerman since it is known in the art that a manually adjustable mirror can be used to redirect an incident laser beam, the selection of which would be based on the design specifications.

8. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeadon et al. in view of Minoura et al., as applied to claims 1, 11 above, and further in view of Suzuki (JP 2-236538).

Yeadon et al., as modified by Minoura et al., discloses all the basic limitations of the claimed invention except for the wavelengths of the laser light sources corresponding to the three primary colors.

However, it is well known in the art of color laser printer to use the laser light sources emitting light corresponding to the three primary colors for exposing the surface of a photosensitive medium. Suzuki, for example, discloses a scanning type photographic printer having three laser light sources emitting light corresponding to the three primary color (RGB), a galvanometer (20) for controlling the positions of the three laser light beams in the sub-scanning direction, and a polygon mirror for scanning the three light beams in the main scanning direction over the surface of the photosensitive medium.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Yeadon et al., as modified by Minoura et al., with the aforementioned teaching of Suzuki since it is known in the art of color laser printing to use a set of laser light sources that emit light corresponding to the three primary colors, and the implementation of which would involve only routine skill in the art.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (6:30-5:00).



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*Hai Pham*

**HAI PHAM  
PRIMARY EXAMINER**

April 20, 2002